Warren C. Havens
Telesaurus Holdings GB LLC

Via email, February 3, 2003

To: FCC: David Furth, Kathleen Ham, Richard Arsenault, Paul D'Ari, Julie Knapp

Cc: Janice Obuchowski (Progeny counsel), and other non-FCC interested parties

Re: RM-10403 (902-928 MHz): (i) Progeny does not represent the LMS Multilateration Service nor is attempting consensus. (ii) Rulemaking is not appropriate at this time. (iii) Response to Progeny 10-10-02 White Paper

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Dear Mr. Furth, Ms. Ham, Mr. Arsenault, Mr. D'Ari, and Mr. Knapp,

Thank you for your work on the referenced matters. Concurrent with sending you this email, I will file a copy on ECFS as an Ex Parte filing in RM-10403 (the "Docket").

On 10-10-02, Progeny filed a technical white paper in the Proceeding (the "White Paper"). Thereafter, Itron and Progeny submitted filings related to the White Paper.[1] On 12-10-02, I sent you an email and filed it as an Ex Parte filing in this Docket (my "12-10-02 Filing"). Herein, I comment on these filings and related matters.

Progeny Does Not Represent LMS Multilateration; Rulemaking not Appropriate at this Time

For myself and Telesaurus Holdings GB LLC, each of whom are LMS Multilateration ("LMS-M") licensees in this band (herein, "Havens-Telesaurus"), I have submitted Comments, Reply Comments, and various Ex Parte filings in the Docket. On December 10, 2002, I sent you an email and filed it as an Ex Parte filing giving reasons why rulemaking in the LMS-M service is not appropriate at this time ("12-10-02 Filing"). I also noted therein that Havens-Telesaurus does not in principal oppose relief that Progeny may seek for its own licenses and plans, and that I may seek relief specific to my licenses and plans.

However, as indicated in my 12-10-02 Filing, rulemaking for LMS-M is not appropriate at this time, including because only Progeny seeks it, and Progeny seeks it without any coordination with and consensus among the holders of the rest of the LMS-M licenses.[2]

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[1] On 1-17-03, Progeny filed a13 pages document in the Docket. This document does not appear to be related to the subject matters of the Docket. Thus, I do not address this filing.

[2] Havens-Telesaurus holds the majority of the rest of the LMS-M licenses (in MHz Pops and in geography), approximately 80% of the A-block LMS-M spectrum (in MHz Pops). Also,

Further, Havens-Telesaurus strongly objects to Progeny's repeated suggestions made in its filings in this Docket, including its "White Paper," that it speaks for the LMS-M service and other LMS-M licensees in terms of what LMS-M is, what it can and cannot do under current rules, how it will operate, what it will succumb to if its requested relief is not granted, what it needs, and so forth. [3] Progeny simply does not and cannot represent Havens-Telesaurus (or other LMS-M licensees from whom it has obtained no authority to speak) and it has not undertaken any consensus building.[4] Even with regard to its own relief proposals, it has not explained the service it plans to offer except if relief is granted except in the most general terms (some of which would not be permitted even under its proposed relief).[5]

Thus, Progeny's claims, arguments, views, admissions, and other statements in this Docket should be considered only in relation to relief it may seek for its own LMS-M licenses. For such relief, rulemaking is not the appropriate vehicle. Proceeding with such rulemaking in these circumstances will only lead to unnecessary contention,[6] waste of Commission resources, and diversion of or harm to efforts by Havens-Telesaurus to develop its LMS-M licenses in a manner noted in its 12-10-02 Filing: via attempts at cooperation with Part 15 and Federal entities operating in 902-928 MHz, in accord with the sprit and substance of the "Testing Requirement," noted below, and also consistent with suggestions in the Spectrum Policy Task Force November 2002 report, also discussed below.

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there is no evidence that Progeny has any support from the other LMS-M licensees. As Progeny knows, it did not in any way coordinate with Havens-Telesaurus its initial filing to commence this Docket, or any subsequent filing or action in this docket. Further, as reflected in the Havens-Telesaurus filings in this docket, there are many fundamental areas of disagreement, even as to what the current rules require and allow.

[3] A review of the Progeny filings makes clear that, rather than representing its case as based on its own plans, views, needs, etc., it represents these as what it thinks is needed by LMS-M service and licensees. (For example, in its White Paper, it represents that LMS-M systems may provide various services and may have various technical characteristics, and it is, after all, by all its filings in this Docket and related meetings at the FCC, seeking rule changes for the entire LMS-M service.) It has no basis for discussing hypothetical LMS-M operations other than its own.

[4] Havens-Telesaurus sought to cooperate with Progeny for purposes of common advancement of the LMS-M service. For its own reasons, Progeny declined. Havens-Telesaurus sought constructive communication with Progeny after its initial filing commencing this Docket. For its own reasons, Progeny choose to make all of its filings without such dialog.

[6] As I noted in my 12-10-02 Filing, I seek constructive dialog and voluntary synergistic relations with Part 15 users of 902-918 MHz as well as the priority-rights Federal users of this band, and Amateur radio users. A rulemaking docket is a poor if not doomed forum for such purpose.

The Progeny White Paper

Regarding the white paper, Havens-Telesaurus may comment more substantially on it if the FCC proceeds with a rulemaking for the LMS-M service. At this point, Havens-Telesaurus makes the following comments:

Progeny alleges that its White Paper supports its 4-point request for rule changes (see page 1 of the White Paper), but it does not support any of these 4 items:

1) The White Paper has no relevance to item 1 (the spectrum cap issue).

2) In regard to its items 2 and 3 (more "flexibility" in providing a range of services with the spectrum)—even if the White Paper was adequate for its alleged purpose of demonstrating a certain lack of unacceptable interference by hypothetical LMS-M transmitters to Part 15 transmitters in the limited cases it dealt with, there is no direct connection between such demonstration and increased service flexibility: LMS transmitters can already, with no such increased service flexibility, transmit all of the time at any location (or "density" as per the White Paper), on all or most all of the licensed spectrum (with certain technologies), at any height and at up to the permitted maximum power levels. The Part 15 devices don't care if the RF from the LMS transmitters carries more or less flexible services: that is, the type of service (e.g., interconnect or not) carried by the RF is not related to interference caused by the RF.

3) The White Paper is not necessary for item 4 (the "Testing Requirement" under §90.353(d)'s last sentence, and the Part 15 "Safe Harbor" under §90.361). In the White Paper Progeny does not explain what this technical study has to do with either the Testing Requirement rule or the Safe Harbor rule as they now exist, or as Progeny proposes to have them modified.[7] The Testing Requirement rule has been interpreted by the Commission[8] and

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[7] Progeny's proposal in this regard is in the Appendix to Progeny's Reply Comments in the Docket, where Progeny writes:

> **I. I. I.** Interference and Safe Harbor
>
> 90.353(d)
> *Existing language*:
> "Additionally, EA multilateration LMS licenses will be conditioned upon the licensee's ability to demonstrate through actual field tests that their systems do not cause unacceptable levels of interference to 47 CFR part 15 devices."
>
> *Progeny proposal*: Delete existing language and replace with the following:
> "Multilateration LMS licensees will cooperate with other users of the 902-928 MHz band to mitigate interference between systems. LMS systems will utilize reasonable interference mitigation techniques where necessary to promote band sharing with existing Part 15 and Part 97 users of the band."

does not require and is not satisfied by the White Paper.[9] Moreover, Progeny's proposal for change of this rule is not materially different from this existing Commission interpretation, and thus there is no ascertainable need for Progeny to make any demonstrations in the White Paper or otherwise on this Testing Requirement matter. Further, the heart of Progeny's rule-change suggestion (that LMS will, where necessary, use interference mitigation techniques) is not reflected in the White Paper. Finally, the White Paper does not factor in variables required for a meaningful study of LMS-M–to–Part 15 interference: see below discussion.

In regards to the Safe Harbor rule and Progeny's suggested changes to it (i.e., the appended language it proposes: see footnote 7 herein), the White Paper is not relevant to the rule as it exists, since this rule has nothing to do with demonstrations of non-interference by LMS-M to Part 15, and the White Paper is not relevant to Progeny's suggested change to this rule, since the change seeks to have Part 15 mitigate interference to LMS-M if this occurs.

90.361
Progeny proposal: Append the following proposed language:
"In the event that operations under Part 15 cause harmful interference to LMS systems in the 902-928 MHz band, the manufacturers of the interfering devices, or where appropriate, the operators of systems or networks that employ such devices, shall cooperate with LMS licensees to mitigate such interference. The manufacturers or system operators will utilize reasonable mitigation techniques where necessary to promote band sharing with LMS systems."

[8] The Commission described what is and is not required by this Testing Requirement in the LMS Docket No. 93-61, MO&O, FCC 97-305 (rel. Sept. 16, 1997), ¶ 69: this was the last pronouncement on this Testing Requirement. Prior to that, in the same docket, Order on Recon, FCC 96-115 (rel. Mar. 21, 1996), ¶¶ 12-17, this Testing Requirement was discussed. The Commission made it clear that it declined to adopt specific technical guidelines for this Testing Requirement and noted appropriately that there are a multitude of ways for both LMS-M and Part 15 operations to fine tune their operations to lessen interference, and that it expected LMS-M and Part 15 system operator to work together on these matters (and it did not mean via adversarial contention in an FCC docket). There was no way then, and there is no way now, to come up with such guideline, at least without undertaking a very complex study such as the Telesaurus-Metricom Simulator had undertaken (see footnote __ below) and such as the November 2002 Spectrum Policy Task Force report (the "Task Force Report") described as necessary for interference measurement and joint use of spectrum by a high-power and a lower-power service.

[9] This rule and its interpretation is specific to a LMS-M licensee's actual system as planned and deployed in relation to actual Part 15 systems in the subject geographic area. It does not involve theoretical simulations as in the White Paper.

As noted above, the White Paper does not involve the range of assumptions and make the range of simulations needed for a study to meaningfully model the effects by a LMS-M operation on various Part 15 device operations (or vice versa). Any useful model must simulate, for both LMS-M and Part 15, commercially viable services[10] with large numbers of base and end-user transmitters over a large area with high traffic. (If high traffic is not simulated, then the simulation is of a failed, non-viable, or spectrum-inefficient service.) The White Paper does not do this. Unless they are fully coordinated for mutual interference mitigation, no two services using the same spectrum, each without restriction in geography and time of use and each with substantial power (Part 15's 1 watt of power is substantial, and LMS-M's power is more substantial), will not in some cases cause harmful interference and in others not cause it. The questions should be: how much interference will be caused based on the multitude of variables involved in LMS-M and Part 15 market-wide services, assuming each has heavy traffic, and how to mitigate this via passive and/or active coordination of technologies and deployments.

Such a meaningful model or simulation, and such questions and their solutions, are complex matters to undertake.[11] First, the LMS service that is simulated must involve "multilateration."[12] The White Paper does not factor this in. Other variables, that must be included for both the LMS-M side, and the Part 15 side, include: (i) location of base and

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[10] And for each, especially Part 15, various "services" must be considered. Part 15 service includes Ricochet and the like (which aims at high traffic over fairly wide areas), meter reading and the like (low traffic), cordless phones (not coordinated by a system operator, unless wireless PBX, but nevertheless widely deployed in predictable patterns), etc. For LMS-M, very wide area vehicular service must be assumed, as well as portable service. LMS-M also involves constant or near-constant multilateration radiolocation, regardless of the level of permitted voice and data communication traffic.

[11] In a joint project, Havens-Telesaurus and Metricom completed the design of an expensive (in the "six figures") computer simulation of the effects of various types of LMS-M wide-area system operations on various types of Part-15 device wide-area system operations (the "Telesaurus- Metricom Simulator") (variable noted above and others were included). This project was cut short when Metricom filed for bankruptcy. However, it demonstrated the complexities involved, variables that must be considered, and the multitude of results (from little interference to great amounts, to both Part 15 and to LMS-M) depending on the variables employed. This Telesaurus-Metricom Simulator was consistent in its approach to determining levels of interference, and ways to passively or actively mitigate interference, to what is described in the November 2002 report from the FCC Spectrum Task Force on these matters.

[12] Multilateration for purposes described in the LMS rulemaking proceeding involves constant use of the LMS spectrum for ongoing location of large numbers of vehicles and other things. Not all of the spectrum capacity must be used. However, to not factor this in a simulation is unrealistic. (Progeny has not asked for any change to the fundamental rule requirement in LMS to provide multilateration location service.)

remote transmitters over a defined wide-area being studied such as an entire metropolitan area (and for these, which are indoors, which are outdoors, and related factors);[13] (ii) type(s) of modulation and power levels of all transmitters (these should vary with need); (iii) amounts of time each transmitter is in operation;[14] (iv) Quality of Service involved in both sides (e.g., Voice, Steaming, Background, Interactive) and in relation thereto, the data rate required and level of latency that is tolerable for each; (iv) passive or active co-channel interference mitigation techniques by the two sides to reduce interference between themselves; and other matters; etc.

The November 2002 Spectrum Policy Task Force report dealt well with fundamental issues involved in the above including: how to better define and measure interference, means to improve spectrum use involving sharing of spectrum by more than one service, means to limit interference between such services including via coordination between them. These are important issues that need resolution at a high policy level before proper application to LMS-M and other services. They are not likely to be resolved well in a near-term LMS-M rulemaking proceeding, sure to be adversarial, including via technical white papers from opposing sides that deal with a small subset of the variables that would or could be involved in LMS operations vs. Part 15 operations and point to no attempts to coordinate the services for mutual benefit.

For reasons given above and in the Havens-Telesaurus 12-10-02 Filing, the FCC should not at this time undertake rulemaking for the LMS-M service, and Progeny should cease representing its interests and views as those of the LMS-M service, which includes other LMS-M licensees. Progeny is free to seek relief it may desire for its own LMS-M licenses.

Again, thank you for your work on these matters.

Sincerely,

Warren Havens
Individually, and as President of
Telesaurus Holdings GB, LLC

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[13] If outdoors, is the service mobile or peripatetic, and what is the terrain, vegetation, man-made infrastructure, etc.; if indoors, what is the nature of building in terms of radio-frequency penetration from and to the outside, etc.

[14] Assuming peak hours for each service, and non-peak, etc.

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